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Beyond The Fabric: How Consumer Awareness and Demand can Shape Sustainable Textile Supply Chains in Pakistan

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ABSTRACT

The textile industry has a large stake in Pakistan's economy, as it is providing employment to a considerable population and adds to 60% of the exports of Pakistan. However, concerns regarding its environmental and social sustainability have intensified in recent years. This paper investigates how consumer awareness and demand can act as catalysts in the process of changing the textile supply chain of the country toward sustainability. Developed economies have adopted sustainable supply chain practices through regulatory frameworks and informed consumer choices, but emerging markets are providing a contrasting image. Despite the growing emphasis on ecofriendly consumption patterns around the world; Pakistani textile manufacturers are still focusing on cost efficiency rather than environmental and social responsibility. Limited consumer knowledge, weak enforcement of sustainability regulations, and financial constraints are some of the key barriers to sustainable transformation. Using a qualitative research approach, this study explores consumer perspectives on sustainable textile products and whether they will opt for sustainable textile products. The researcher conducted the semi-guided interviews and performed the content analysis. Findings suggest that increasing consumer awareness and aligning demand with global sustainability trends can drive businesses to adopt responsible practices. However, a considerable percentage of consumers are still focusing on affordability over ethical consumption. This is partly due to lack of awareness among the Pakistani textile consumers and majorly due to unavailability of sustainable options that are affordable as well. This study provides insights for policymakers and businesses, highlighting the need for strategic interventions such as incentives, regulatory enforcement, and awareness campaigns to promote sustainability by enhancing informed consumer engagement and improving industry-wide policies.

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INTRODUCTION

The World Commission on Environment and Development (WCED), in 1987, introduced a definition of sustainability that is widely adopted by researchers and practitioners globally. According to this definition, sustainability means fulfilling our present needs without compromising the ability of future generations to meet their own needs (Brundtland, 1987). The concept of sustainability is built on three key pillars: environmental, social, and economic. A similar concept, the Triple Bottom Line,

proposed by Elkington in 1994, suggests that businesses should focus on three core dimensions: people, profit, and planet. The economic or profit aspect emphasizes that businesses are primarily accountable to their stockholders and are responsible for generating revenues while ensuring favorable returns for investors on their capital (Goodland, 2002). The environmental or planet aspect allows businesses to use limited natural resources as inputs to produce outputs, but it emphasizes the need for businesses to minimize the negative impact on biodiversity during this process (Morelli, 2011). On the other hand, the social or people aspect highlights how businesses should consider their employees' physiological and psychological needs. It calls for creating a working environment that ensures good working conditions, reasonable working hours, competitive wages, job security, while prohibiting child labor and ensuring fair treatment for all workers (Palley, 2002). Covering one's body is a fundamental human need that not only protects individuals from the harsh effects of the weather but with the passage of the time clothes have become a symbol of social status as well. With the advent of the internet, people now have access to rapidly changing fashion trends and unlimited numbers of brands, leading to accelerated consumption. This, in turn, has led to increased production and, ultimately, significant waste.

Globalization has not only resulted in consumer access to distant products; it has also enabled products to be manufactured in regions with cheap labor and easy access to materials, allowing businesses to increase their profit margins (Barnes & Lea-Greenwood, 2010). Unfortunately, the rapid changes in fashion trends, the proliferation of e-commerce websites where consumers can order clothing products with just a click, and the use of synthetic materials, which are cheaper than natural ones, have resulted in an easier access to textile products. As a consequence, the frequency of disposing of apparel and textile products is increasing day by day. Every year, millions of tons of clothing end up in landfills or are incinerated, contributing to health hazards and environmental damage due to the harmful emissions from burning textiles. The textile sector is labor-intensive, and major brands like Denim, H&M, Levi's, Nike, Zara, Gap, and many other big players have shifted their manufacturing to emerging economies in South Asia, such as Pakistan, where cheap labor is readily available.

In many emerging economies, the rights of workers in the textile sector are often overlooked, and governments tend to prioritize economic growth from large factories rather than considering the environmental or social impacts of the textile supply chain. The establishment of factories is seen as a major success for governments, as it provides jobs, but the consequences on local biodiversity and worker welfare are often neglected. Pakistan’s textile industry, which constitutes approximately 8.5% of the country’s GDP and over 60% of total exports, is no exception (Naeem & Siddique, 2024). Despite its economic significance, the sector faces growing criticism for unsustainable practices, including water pollution, inefficient energy usage, and poor waste management. Furthermore, the industry is deeply embedded in global fast fashion supply chains, where rapid production cycles prioritize cost efficiency over sustainability (Leal Filho et al., 2024). Though contributing to the national economies, textile sector has a considerable negative impact on social and environmental aspects of society. On April 24, 2013, the Rana Plaza factory collapse in Bangladesh claimed the lives of over 1,100 people, mostly garment workers. This incident highlighted the poor working conditions

and lack of safety standards in the industry. Similarly, in Vietnam, garment workers protested in 2016 over low wages, poor working conditions, and long hours, demanding better labor rights. Another tragic example is the Tazreen Fashions Fire in Bangladesh in 2012, resulted in the deaths of 112 workers because of no fire safety measures and locked exits. Examples also prevail in Pakistan with incidents such as the Baldia Town Factory Fire in 2012 that took at least 258 lives. Bangladesh's textile mills have been emitting untreated toxic wastes into the Buriganga River, severely polluting the water. Similarly, in Pakistan's Punjab province, textile mills use large amounts of water for dyeing and washing, causing serious underground water depletion and contamination with dangerous chemicals. The negligent labor conditions allow the further exploitation of workers by these textile industries.

The process of the supply chain involves all stakeholders and processes that contribute to delivering a product to the end consumer. A rapidly increasing concern over the environment and society together with the surging demand to cut down waste has forced the integration of sustainability in supply chain activities. Consumers' behavior plays an important role in this movement. As consumer awareness rise, businesses are being driven to redesign their supply chain operations to incorporate sustainability at every stage. In developed economies, governments have introduced sustainability certification programs, such as Fair Trade and Organic labeling, to guide consumer choices (Boström & Micheletti, 2016). In developing economies like Pakistan and Bangladesh, people's disposable income is limited, and Pakistan also has a lower literacy rate. As a result, environmental concerns receive less attention, and there is minimal demand for sustainable products. When consumer demand is low and government regulations on sustainability are not strict, businesses also avoid long-term sustainable investments and instead focus on short-term profits (Vătămănescu et al., 2021). However, with greater global integration, the rise of digital activism, and corporate social responsibility efforts, sustainability awareness is gradually increasing in emerging markets as well. Simply informing consumers about the benefits of sustainable products and practices is not enough; it is also crucial for them to actively demand such products. Research has shown that in countries where consumers demand green and eco-friendly products, businesses are more likely to adopt responsible production mechanisms (Nguyen & Adomako, 2022).

Since consumers are not demanding sustainable products, businesses, focused on short-term profits, are not adopting sustainable practices. However, this scenario is beginning to change. Businesses involved in exports and part of the global textile supply chain are now catering to consumers in developed economies who are sustainability-conscious. The increasing influence of social media, digital activism, and international sustainability standards in Pakistan provide a prime opportunity to educate local consumers, thereby encouraging a shift in market behavior toward sustainability (Xie et al., 2024). Encouraging sustainability within the textile industry in Pakistan is realized as a need to change in the consumer's perception, which will lead to informed purchasing behaviors resulting in the change within the industry. It is only when consumers take this as the priority that it will motivate businesses enough to move along with global environmental trends. There are several objectives of this study. First the article aims at studying the awareness level and demand of consumers towards

sustainable textile products. Further the researcher is exploring the strategies available for organizations to encourage consumers to prefer textile products manufactured based on sustainable practices. This study also aims at identifying the barriers that limit consumers from preferring products produced using sustainable supply chains instead of those made using conventional supply chains. The core objective of the research will be providing recommendations for policymakers and businesses to enhance consumer engagement and promote sustainability in the textile sector. By bridging the gap between consumer awareness and corporate sustainability efforts, Pakistan's textile industry can align with international sustainability standards and ensure its long-term competitiveness in the global market. This study will contribute to the literature on sustainable supply chains, along with consumer awareness and demand by shedding light on the largely untapped potential of consumer-driven change in the textile sector of emerging economies.

LITERATURE REVIEW

The textile sector plays a vital role in strengthening the global economy by driving employment across various countries and facilitating the export of semi-finished and finished goods, thereby contributing to GDP growth. It promotes industrialization and fosters trade between nations, while the global nature of textile supply chains enhances firms' competitiveness. However, the increasing environmental and social impact of textile supply chains has led to growing scrutiny, shifting the focus toward sustainability (Boström & Micheletti, 2016). The conventional linear supply chain model, which involved excessive resource consumption and generated pollution and waste, is now being replaced by a sustainable and circular model in developed countries. This new approach minimizes resource wastage and promotes environmental responsibility. Specifically, in the textile sector, sustainable supply chain practices include using eco-friendly raw materials sourced with consideration for stakeholders' social rights, implementing energy-efficient production processes, adhering to ethical labor practices, and adopting responsible end-of-life disposal strategies (Okogwu et al., 2023). All these approaches align with sustainability goals of United Nations. The 12th goal especially focuses on sustainable production and consumption practices. Nonetheless, transitioning to a sustainable textile supply chain remains a challenge due to systemic inefficiencies, financial constraints, and consumer behavior dynamics. Consumer awareness is a crucial factor that encourages customers to adopt sustainable purchasing behavior. As a result, companies are being compelled to adopt responsible and sustainable business models. Studies indicate that environmentally conscious consumers prioritize sustainability attributes in their purchasing decisions, pushing firms to enhance transparency in their supply chains. Research shows that in developed economies, the adoption of sustainable practices in the textile sector's supply chain has accelerated due to strict regulations and well-informed consumers (Rahman et al., 2019).

Regulatory authorities have developed several certifications like Fair Trade, GOTS (Global Organic Textile Standard), and OEKO-TEX to analyze the supply chain of textile companies in order to assess the potential failures of textile companies in adopting sustainable practices. Consumer awareness regarding sustainability is low in emerging economies like Pakistan. Many SMEs in textile sector are

struggling for survival, while there is no stringent regulation over the social and environmental aspects of a firm by regulatory authorities. In Pakistan, consumers are highly price-sensitive, and sustainability labeling is not standardized throughout the textile industry. In the textile sector of Pakistan the buying behavior is frequently led by affordability and brand perception instead of considering sustainability aspects (Iqbal et al., 2024). There is an increasing amount of research that shows the impact of demand-driven sustainability on the redesign of supply chains. With the growing demand for sustainable textile products, companies are now innovating their processes and redesigning their supply chains. Research also shows that companies that integrate sustainable practices into their business models have long-term economic and reputational benefits (Ortiz-de-Mandojana & Bansal, 2016).

Technology is also making the supply chain of the textile industry more sustainable. For example, blockchain and digital tracking ensure that the complete path of the product can be tracked, hence it becomes feasible for the customers to validate their source as being ethical; and how the manufacturing process has affected the environment (Chang et al., 2019). Those brands which engage in sustainability-centered marketing strategies have been found to positively influence consumers' preferences and purchasing patterns. Achieving demand-driven sustainability for Pakistan's textile industry would require coordinated efforts from policymakers, businesses, and civil society in enhancing consumer awareness and establishing clear sustainability benchmarks. Despite the global commitment to sustainable supply chain practices, several barriers hinder the adoption of sustainability in Pakistan's textile supply chain. The most critical challenge is the financial burden of the transition. Many companies, especially SMEs, work on very narrow profit margins and cannot afford the cleaner production technologies, renewable energy, and waste reduction processes (Rizos et al., 2016; Tereshchenko et al., 2023). Although these investments provide long-term benefits, the short-term costs can cut the profit margins to the point where firms go bankrupt. There is a lack of government regulations and financial incentives that promote sustainable practices in the textile sector. Although Pakistan has many environmental regulations, this is solely due to poor monitoring and lack of mechanisms for accountability; it has a very weak enforcement record. The lack of traceability mechanisms in the Pakistani textile supply chain is another significant challenge. Sustainable supply chains require traceability from raw material sourcing to final product distribution, but many textile firms in Pakistan depend on disintegrated supplier networks with minimum control. Without standard sustainability criteria, building trust in sustainable textile products becomes difficult (Khan et al., 2021). From a theoretical point of view, stakeholder theory and institutional theory offer rich insights into sustainability evolution in textile supply chains. As indicated by the stakeholder theory, it is important to recognize all stakeholders involved in any process.

In the case of the textile sector's supply chain, these stakeholders comprise consumers, employees, regulatory bodies, NGOs, and the environment. From the perspective outlined, stakeholder engagement is highlighted to be vital for the adoption of sustainable business practice and improving corporate accountability. Institutionally, theory examines the various pressures by the regulatory, normative, and cultural-cognitive environments influencing organizations' actions. As demand from

stakeholders continues to grow for sustainable products and processes, organizations are now restructuring their supply chains to achieve sustainable supply chain practices. Empirical research findings are that firms in regions with firmer institutional support for sustainability are more likely to adopt eco-friendly and ethical business practices.

Recent studies highlight the interplay between globalization and sustainability in the textile industry. The manufacturing of several big fashion brands has been shifted to low-cost labor markets such as Pakistan, Bangladesh, and Vietnam. Though this has been helpful in increasing their economic growth, it often comes with the cost of environmental degradation and violation of labor rights. The fast moving fashion trends results in rapid production cycles to save cost; however, those cost-cutting measures are not only exploited toward the labor employed but also result in excessive resource consumption (Sharma & Sharma, 2024). For the emerging economies like Pakistan a strategic approach is needed to integrate the sustainability into the supply chain of textile sector. For proper integration industrial competitiveness along with environmental responsibility needs to be considered for each firm. Previous research has highlighted that Industry 4.0 practices can help the firms to enhance their performance in the production and service sector. While keeping the stakeholders in the loop the contemporary practices enable them to compete more effectively while maintaining sustainability goals (Ali & Kausar, 2022). By improving operational efficiency, ensuring compliance with international sustainability standards, and fostering innovation through research and development, the Pakistani textile firms can enhance both their domestic and global competitiveness. Hence, the whole scenario demands improved stakeholders cooperation mechanisms, stronger compliance structures, and transition into slow-fashion patterns where the quantity is superseded by quality (Bukhari & Hayat, 2024) .

RESEARCH METHODOLOGY

Research Design

This research uses qualitative design, to explore how consumer awareness and demand can play a crucial role in transforming the conventional supply chain of Pakistan's textile sector into sustainable supply chain. In line with the main purposes of the study, the interview technique was used as a data collection tool in this study. With the open nature of interview questions all participants can answer the questions deeply and clearly (Dearnley, 2005). This qualitative, interview-based approach facilitates direct interaction with end customers or consumers that provides first-hand information regarding the phenomenon. The population of the research consists of participants with the age of 18–44 shopping for textiles in Punjab, Pakistan. Convenience sampling method was preferred due to the time constraints. The research strategy emphasizes interviews with consumers who have some basic knowledge of sustainable practices and their impact on the environment. The researcher used a mono-method, strictly reliant on qualitative techniques of data collection. The time horizon applied was cross-sectional where the study used data collected at a particular point in time within e.g. 2024. In terms of gender, n=10 of the participants in the study were men and n=28 were women. In terms of ages, n=7 of them were between the ages of 18–24, n=19 of them were between the ages of 25–34,

and n=12 of them were between the ages of 35–44. When the distribution of the participants in line with their educational status was examined, it was determined that only n=22 of have earned bachelor's degree and n=14 of them had master's degree and n=2 held doctoral degree. In addition, n=19 of participants were married whereas n=18 were single and n=1 was separated.

Demographic data of participants

Gender	Age	Education	Marital Status
M1	25–34	Bachelor's Degree	Married
M2	18-24	Bachelor's Degree	Single
M3	25–34	Bachelor's Degree	Married
M4	25–34	Bachelor's Degree	Married
M5	35–44	Master's Degree	Married
M6	35–44	Master's Degree	Married
M7	25–34	Bachelor's Degree	Single
M8	25–34	Bachelor's Degree	Single
M9	18-24	Bachelor's Degree	Single
M10	25–34	Bachelor's Degree	Married
F1	25–34	Master's Degree	Single
F2	25–34	Master's Degree	Single
F3	18-24	Bachelor's Degree	Married
F4	18-24	Bachelor's Degree	Married
F5	18-24	Master's Degree	Single
F6	35–44	Bachelor's Degree	Married
F7	25–34	Bachelor's Degree	Married
F8	35–44	Bachelor's Degree	Single
F9	25–34	Bachelor's Degree	Single
F10	35–44	Bachelor's Degree	Married
F11	25–34	Bachelor's Degree	Married
F12	35–44	Bachelor's Degree	Single
F13	25–34	Bachelor's Degree	Married
F14	18-24	Master's Degree	Married
F15	35–44	Master's Degree	Single
F16	25–34	Bachelor's Degree	Single
F17	35–44	Doctoral Degree	Married
F18	25–34	Bachelor's Degree	Married
F19	35–44	Bachelor's Degree	Single
F20	25–34	Master's Degree	Married
F21	18-24	Bachelor's Degree	Single
F22	25–34	Master's Degree	Single
F23	35–44	Master's Degree	Single
F24	35–44	Master's Degree	Single
F25	25–34	Master's Degree	Separated
F26	25–34	Master's Degree	Single
F27	35–44	Doctoral Degree	Married
F28	25–34	Master's Degree	Married

Interview Guide

The semi-structured interview guide was meticulously developed to outline the main topic of the study, providing a structured framework while allowing flexibility to adapt to participants' responses. The questions in the interview form were prepared by examining similar studies as a result of the literature review (Mishra et al., 2023); (Rausch et al., 2021); (Şirin & Kenan, 2020).

The main research question was that the researcher is aiming to explore is "*How Consumer Awareness and Demand can shape Sustainable Textile Supply Chains in Pakistan."*

To explore this phenomenon the following questions were put to participants. ***Q1*** What factors influence your clothing purchase decisions***? ; Q2*** On average, how long do you wear newly purchased clothing before replacing it? ; ***Q3*** How do you handle old or unused clothing items***?*** ; ***Q4*** How do you define the concept of "sustainable clothing"? ; ***Q5*** Are you aware of the environmental impact of clothing production? ; ***Q6*** Are you aware of the social impact of clothing production? ; ***Q7*** Would you prefer sustainably produced clothing?

A total of 38 interviews were conducted, achieving data saturation as responses became repetitive (LaDonna et al., 2021). Ethical standards were rigorously upheld, ensuring participants' privacy, anonymity, and their right to withdraw from the interview at any time. Phenomenological studies typically involve more than ten interviews (Creswell & Poth, 2016). However, recent qualitative research emphasizes that an adequate sample size depends on achieving data saturation (Guest et al., 2006). With 38 interviews, this study ensures a comprehensive exploration of consumer perspectives, aligning with best practices in phenomenological research (Mason, 2010).

RESULT AND DISCUSSION

After the interview questions were developed, a pilot interview was conducted with five participants. Interviews were conducted thereafter because the questions were clear. The detailed interviews were conducted after the questions were understood. Content analysis was used to interpret their opinions about the phenomena and to determine their perceptions and values. The interviews were analyzed via Microsoft Excel. In this situation, the response provided by participants were first sorted and coded and then were analyzed according to the frequency of the responses.

Content analysis result

According to the answers of the Q1 the factors that the participants pay attention to when purchasing clothes were grouped under 15 sub-categories. These sub- categories were grouped under 5 main categories: price & affordability, fabric quality & comfort, brand & trends, style & color and .durability. In line with the frequency of answers the focus is mostly on "price & affordability" (n= 29) and "brands and trends" (n=23).

"Inflation has increased a lot in Pakistan, so the clothes I buy from brands for going to the office, I purchase them when the brands have sales. This way, I can save as much money as possible." (M3)

"When I go to the university, I have to keep in mind which designs and brands are currently in fashion so that I wear clothes that are trendy and fashionable." (F9)

"In Pakistan, the hot season lasts a long time, so when I buy clothes, we make sure that they are made of breathable fabrics. This way, when I am busy with household chores, I feel as little heat as possible while wearing them." (F27)

Content Analysis Result of Q1

Main Category	Item	Frequency
Price & Affordability	affordable	11
	budget friendly	9
	sales	5
	discount	4
Fabric Quality & Comfort	soft material	5
	comfortable	7
	weather-appropriate fabrics	9
	breathable fabric	3
Brand & Trends	branded clothes	11
	latest fashion	17
Style & Color	attractive design	7
	simplicity & functionality	6
	color combinations	2
Durability	good stitching	4
	washes well	1

From the above mentioned content analysis, it can be seen that none of participants had “sustainable material” or “sustainable manufacturing” in mind while making a purchase decision.

Usage time of newly purchased clothes tells how long the textile is consumed. Long-term usage of purchased clothes is consumption behavior compatible with sustainable fashion. The textile can be worn for a long time if it was made from wear-resistant material. The answers given by the participants who used their clothes for a long time set an example for this:

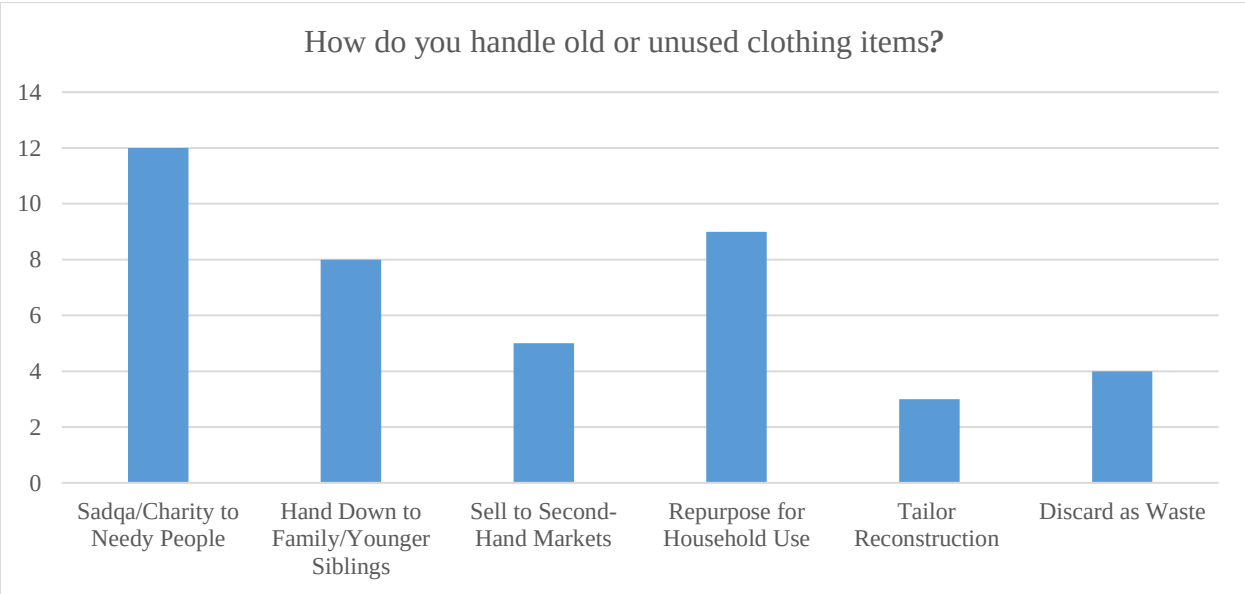
Content Analysis Result of Q2

Main Category	Frequency
Less than 6 months	3
6 months to 1 year	6
1 year to 2 years	14
2 years to 3 years	8
More than 3 years	4
Until they are torn	2
When they don’t fit	1

Q3 was asked for knowing the response of consumers, after some time or how they evaluate them dispose of their clothes. Based on the responses received from participants, categories were regrouped into three major categories e.g. “Redistribution and Social Welfare”, “Reuse & Functional Repurposing” and “Waste Management”.

Content Analysis Result of Q3

Main Category	Item	Frequency
Redistribution and Social Welfare	Sadqa/Charity to Needy People	22
	Hand Down to Family/Younger Siblings	8
	Sell to Second-Hand Markets	5
Reuse & Functional Repurposing	Repurpose for Household Use	9
	Tailor Reconstruction	3
Waste Management	Discard as Waste	4



Majority of (n=22) participants mostly give the worn out clothes that they are tired of wearing, mostly to the needy. Giving unworn clothes to the needy extends the life of these clothes and it is the right behavior in sustainable fashion. Another common use of old clothes was converting them into dusters, pillow covers etc. *"We usually use old clothes as dusters, and old bed sheets are either placed on sofas or used to cover household items."* (F28)

*"I give my old clothes to those in need, not only does it make them happy, but it also allows me to follow Islamic values." (*M4)

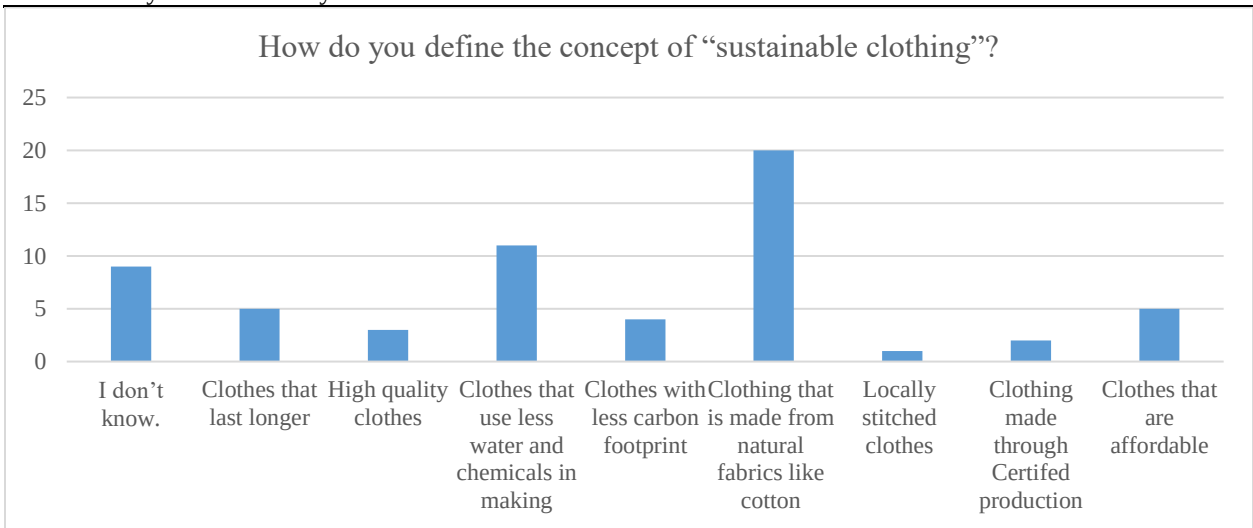
"My mother gives her clothes to the housemaid working at our home, and her daughters happily wear my old clothes." (F5)

"My sister insists on taking my clothes, and even before I stop wearing them, she starts using them alongside me. So, we can't really say she wears my old clothes; rather, she borrows them from me while they're still in my use!" (F21)

Question no 4, seeks to understand how the participants understand and define the term “sustainable clothing”. It is revealed that a considerable number of participants (n=20) understand the concept of the term that it is something that is made of natural material such as cotton. 11 Participants answered that sustainable clothing refers to clothing types that use minimal water and chemicals. One noteworthy point here is that almost all participants were familiar with this term in some way and were able to explain it. Only two participants were unable to define the term. This indicates that awareness of sustainable products and processes is growing among the Pakistani population."

Content Analysis Result of Q4

Main Category	Item	Frequency
	I don’t know.	2
Durability & Longevity	Clothes that last longer	5
	High quality clothes	3
Environmental Impact	Clothes that use less water and chemicals in making	11
	Clothes with less carbon footprint	4
Material & Fabric Choice	Clothing that is made from natural fabrics like cotton	20
Local & Ethical Production	Locally stitched clothes	1
	Clothing made through Certified production	2
Affordability & Accessibility	Clothes that are affordable	5



"In my personal opinion, clothes made from natural fibers like cotton are considered sustainable clothing." (M3)

"Sustainable clothing refers to high-quality clothes. The longer the clothes we buy last, the longer we will use them and avoid replacing them frequently. This will not only save us money but also reduce waste." (M10)

“Manufacturing firms that ensure their clothing production has a minimal carbon footprint; meaning less water wastage, reduced chemical usage, and minimal negative environmental impact during the manufacturing process.” (F27)

It is also important to understand that all participants viewed sustainability from the perspective of a product or manufacturing process's environmental impact. Either the participants were not aware of the social aspect, or it wasn't a priority in their minds while responding to the question.

Q6 intended to determine the level of knowledge about the environmental damage caused by clothing production. Responses varied in the nature of knowledge of participants while some were aware of the fact that harmful chemicals that are being released into rivers and other water reservoirs by the textile manufacturing factories (n=16), many were aware that the textile production process use water in large quantity (n=22). The answers given by the participants were divided into 4 main categories as "Water Impact", "Chemical Waste", Energy Consumption", "Waste and Pollution".

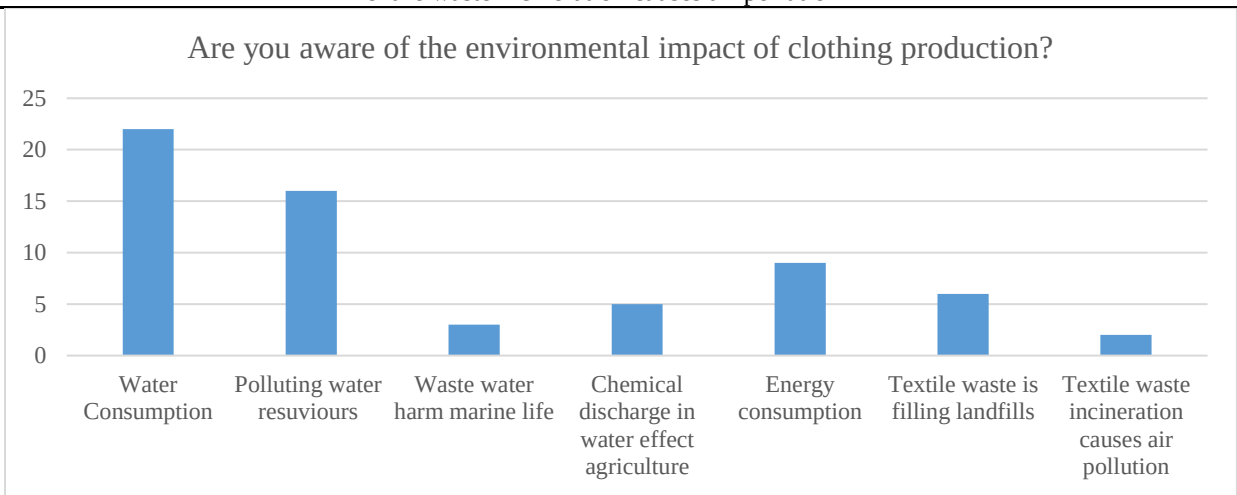
"I know that textile factories discharge harmful chemicals into rivers, which affects marine life and agriculture." (M6)

"I have often seen used old clothes discarded in the trash. When garbage is burned, it releases smoke that pollutes the air. Nowadays, the issue of smog is also quite serious. I believe that these discarded clothes will either fill up landfills, and if they are burned, the air will become even more polluted." (F18)

The content analysis of the responses can be seen in the table below:

Content Analysis Result of Q5

Main Category	Item	Frequency
Water Impact	Water Consumption	22
	Polluting water reservoirs	16
	Waste water harm marine life	3
Chemical Waste	Chemical discharge in water effect agriculture	5
Energy Consumption	Energy consumption	9
Waste and Pollution	Textile waste is filling landfills	6
	Textile waste incineration causes air pollution	2



Q6 relates to understanding the impact of textile production on society. Some respondents considered the positive impact of the textile industry, highlighting its role in job creation (n=10). However, others focused on its negative impacts, including child labor (n=6), low wages (n=12), poor working conditions (n=15), and unequal wages for female employees (n=4). All the responses are categorized into 3 main categories e.g. “Economic Contribution”, “Labor Rights Violations” and “Workplace Conditions and Safety”.

"The textile sector provides jobs to millions so working conditions become a secondary issue." (M4)

"In a country like Pakistan, where doing business is not easy, if people are running textile mills, it is providing employment to the local population. If mill owners are constantly pressured under the name of labor laws or wage-related regulations, the ultimate loss will be borne by the people. If these businesses shut down, countless individuals will lose their livelihoods." (M3)"Women in factories often work long shifts, but I don’t know if they are treated fairly." (F17)

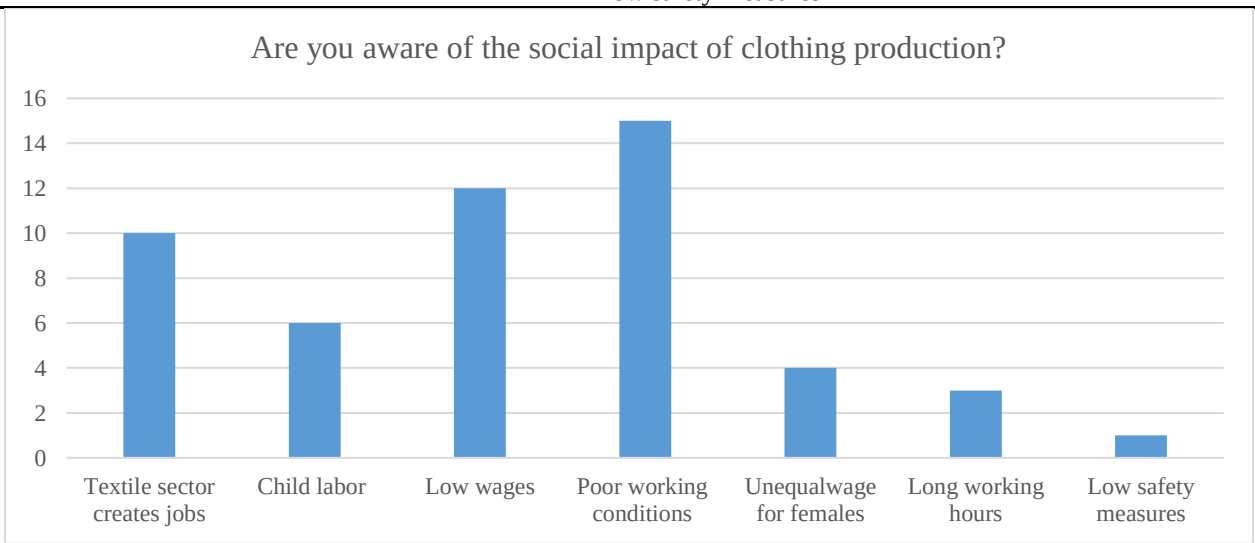
"Women make up a significant part of the textile workforce but often face unequal pay and unsafe work environments." (F27)

"I think child labor is still an issue in small textile mills, despite labor laws." (F28)

The complete content analysis for Q6 is provided in the table below.

Content Analysis Result of Q6

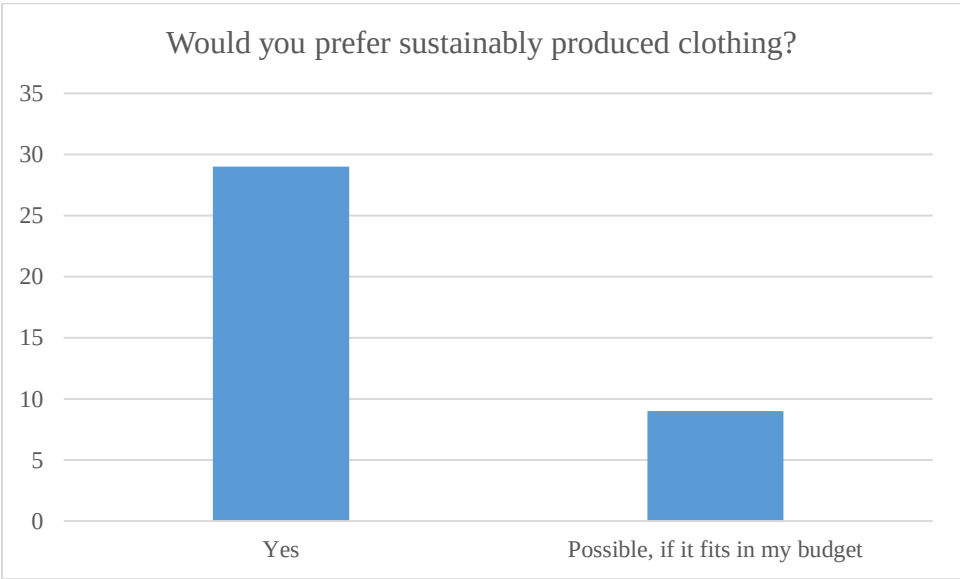
Main Category	Item	Frequency
Economic Contribution	Textile sector creates jobs	10
Labor Rights Violations	Child labor	6
	Low wages	12
	Poor working conditions	15
	Unequal wage for females	4
Workplace Conditions and Safety	Long working hours	3
	Low safety measures	1



Q7 preferences related to the sustainable clothing of the respondents. Yes and Possible answers were determined as the main categories, and the reasons. Here, n=29 of the respondents said that they would like to wear sustainable clothing n=9 of the respondents said that they would not like to wear sustainable clothing if it falls in their budget.

Content Analysis Result of Q7

Main Category	Frequency
Yes	29
Possible, if it fits in my budget	9



This research would, therefore, add to the understanding of consumers' behavior and sustainability by throwing light on key issues regarding clothing choices that are associated with affordability, durability, and brand preference. It goes hand in hand with the Theory of Planned Behavior (TPB) as demonstrated by how budget constraints, combined with awareness concerning environmental and social issues, influence purchasing and disposal decisions. In addition, the findings complement the literature on circular economy principles in fashion, identifying common reuse, redistribution, and repurposing behaviors and reinforcing existing frameworks on sustainable consumption.

The study is therefore important for lighting up consumers' awareness towards environmental and social responsibility, stressing greater integration of ethical fashion practice in supply chain models of sustainability. The understanding that issues in relation to the amount of water consumption, chemicals emitted as wastes, and breach of labor rights by the factory, among other aspects, should imply that customers increasingly understand such issues, however still with considerable knowledge gaps.

At the practical level, the study contributes to policymakers and businesses as well as sustainability advocacy. The recommendations indicate that it is possible that policies that enable affordable, yet sustainable clothing can eventually bridge the divide between environmental sensitivity and purchasing behaviors. In light of the developing interest in reusing, reselling, or repurposing, businesses are also likely to capitalize on these trends by pushing second-hand markets, up-cycling initiatives, and clothing donation systems. Results indicate the need for consumer education campaigns that bridge awareness gaps in regard to the environmental and social costs of clothing production, such as water consumption, chemical pollution, and unfair labor practices. Durability, comfort, and affordability all point to high-quality, long-lasting materials.

Prices need to be kept as accessible as possible to a wide consumer base, and the push for sustainable product design and certified ethical production may improve consumer trust and support in the shift toward more responsible fashion consumption. The study gives recommendations to labor rights organizations and government regulators in their quest to change poor working conditions, low wages, and issues of safety related to the textile sector so that sustainability goes beyond environmental factors, but social equity and ethical labor practices.

CONCLUSION AND POLICY IMPLICATION

Policymakers can play a great role in making the textile industry sustainable. Among the most important incentives would be tax benefits, subsidies, or grants to the manufacturers who start producing clothing using sustainable methods. This could be water-efficient dyeing, chemical reduction, and low-carbon footprint materials. To ensure effective implementation, regulatory bodies such as the Pakistan Environmental Protection Agency and the Ministry of Climate Change should oversee compliance, providing periodic reports and enforcing penalties for non-compliance. Additionally, successful models from countries like Germany and Sweden, which offer green tax incentives and subsidies for sustainable production, could serve as a reference for Pakistan. Furthermore, stringent regulations should be imposed on production processes to reduce environmental damage but at the same time keep products affordable for the consumer.

Labor rights and workplace safety are still pressing issues in Pakistan's textile sector. Many workers face low wages, gender-based wage disparities, excessive working hours, and poor conditions. Therefore, the policy should enforce stronger labor laws and ensure compliance through regular audits, support worker welfare initiatives, and make international labor standards mandatory, with penalties for non-compliant businesses to create an ethical work environment. Periodic labor inspections conducted by the Pakistan Workers' Federation and labor unions should be mandated to ensure compliance. Additionally, penalties for non-compliance and incentives for firms that maintain ethical labor practices can further improve worker conditions.

Raising consumer awareness is equally important in fostering sustainable fashion practices. Governments and industry leaders should collaborate on educational campaigns that inform consumers about the environmental and social impacts of clothing production. Specific initiatives, such as digital campaigns through social media platforms, school curriculum integration, and partnerships with major fashion retailers, can help amplify awareness. Global case studies, such as the UK's "Sustainable Clothing Action Plan," provide valuable strategies that Pakistan can adopt.

These campaigns could be executed through digital media, school curriculums, and brand collaborations, encouraging responsible purchasing behaviors and better waste disposal practices. Sustainability can be encouraged by fostering a circular economy. Policymakers should therefore advance second-hand clothing markets, textile recycling programs, and repairing initiatives. Take-back programs will reduce the amount of textile waste through the collection and repurposing of old garments. In addition, there is a need for strong regulation related to transparency and labeling standards. Apparel should come with eco-labels that will have clearly defined statements regarding the consumption of water, carbon footprint, and ethical production processes; thus, allowing the consumer to make informed decisions.

This study has a number of limitations despite being meaningful insights. This includes a relatively narrow geographical scope limited to Pakistan that makes generalization of findings in other regions under varied economic and regulatory conditions challenging. A comparative study on a broader basis would help to understand sustainable textile practices in varied contexts. The knowledge gap among consumers is another limitation. Most respondents are aware of sustainability issues regarding production and environmental impact but seem to have limited understanding of social aspects, including labor exploitation. Further studies can utilize more in-depth qualitative methods, such as interviews or ethnographic research, to gain better insight into consumer perceptions. Since the study was dependent on self-reported data, there may be a response bias, as respondent’s over-informally overestimated awareness or sustainable behaviors because of social desirability. Observational studies or even the tracking of purchase behavior could validate such responses. Moreover, this research primarily focuses on the consumer's viewpoint without insights from textile manufacturers, policymakers, and fashion brands. A more comprehensive study, considering the industry viewpoint, would more clearly indicate what sustainability challenges face different stakeholders.

Future research should be conducted in other textile-producing countries, such as Bangladesh, India, and China, to further explore sustainability trends. A comparative study would help identify country-specific barriers and enablers for sustainable practices, providing valuable insights for international policymakers and industry leaders. Longitudinal studies on consumer behavior would also be beneficial, tracking how awareness and purchasing patterns change over time, especially in response to policy interventions and educational campaigns.

This would then give information on whether sustainability initiatives really go to change the long-term consumer habits. Another significant area for future research is studying how Pakistani textile firms are complying with the international standards of sustainability including ISO 14001, Fair Trade, and Global Organic Textile Standard (GOTS). Understanding the challenges the firms face in being compliant helps policymakers to develop better regulatory frameworks and support programs. The role of technology in sustainable fashion could be a great innovation for the industry. For example, how blockchain can enhance supply chain transparency or how artificial intelligence can aid in designing sustainable clothing are very important areas of research. In addition, understanding consumer willingness to pay for sustainable fashion will help brands and policymakers to come up with the right pricing strategies that balance affordability with ethical production. These research gaps can be covered through further studies that can contribute much to Pakistan's sustainable development of its textile industry and beyond.

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